

04-SC-001 – Science Laboratories Infrastructure, Project Engineering Design (PED), Various Locations

1. Construction Schedule History

Fiscal Quarter				Total Estimated Cost (\$000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete	

N/A-See Subproject details

2. Financial Schedule

(dollars in thousands)

Fiscal Year	Appropriations	Obligations	Costs
2004	2,000	2,000	1,600
2005	0	0	400

3. Project Description, Justification and Scope

This project funds PED for two types of subprojects:

- Projects that renovate or replace inefficient and unreliable general purpose facilities (GPF) including general use, service and support facilities such as administrative space, cafeterias, utility systems, and roads; and
- Projects to correct Environment, Safety and Health (ES&H) deficiencies including deteriorated steam lines, environmental insult, fire safety improvements, sanitary system upgrades and electrical system replacements.

This updated request provides the status of ongoing PED projects funded in FY 2002 and proposed in FY 2003. This PED data sheet requests design funding for one FY 2004 new start: Stanford Linear Accelerator Center – Safety and Operational Reliability Improvements.

FY 2004 Proposed Design Projects

Environment, Safety, and Health Project:

04 -04: MEL-001-036 – Safety and Operational Reliability Improvements (SLAC)

Fiscal Quarter				Total Estimated Cost (Design Only) (\$000)	Full Total Estimated Cost Projection ^a (\$000)
A-E Work Initiated	A-E Work Completed	Physical Construction Start	Physical Construction Complete		
1Q 2004	3Q 2004	4Q 2004	N/A	2,000	15,600

Fiscal Year	Appropriations	Obligations	Costs
2004	2,000	2,000	1,600
2005	0	0	400

This project has two components:

- Underground Utility Upgrades - this component will replace deteriorated sections of cooling water, low conductivity water, drainage, natural gas, compressed air and fire protection which are critical to the operation of the linear accelerator and the B Factory rings which produce the essential collisions needed for the Parity Violation studies (one of the pillars of the current US High Energy Physics program also carried out competitively at KEK in Japan). There have been five pipe failures over the last two years and the failure rate is expected to increase in these 35 year-old systems as they continue to age. When the pipes fail, research is slowed or halted until repairs are completed.
- Seismic Upgrades – this component will install seismic upgrades necessary to bring various building structures into compliance with the seismic standards of the Uniform Building Code. The seismic hazard in the Bay Area is high. 19 “essential” facilities, i.e., those that will minimize the time required for the Laboratory to recover from an earthquake, will be retrofitted for a total of 229,000 sq. ft. Payback is 9 years.

FY 2003 Ongoing Design Projects

(dollars in thousands)

(Design Project No. PED-03-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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General Purpose Facilities Projects:

03 -01: MEL-001-028
Building 77 Rehabilitation
Of Structures and
Systems, Phase II

LBNL 1,100 0 0 0 1Q2003 2Q2004 3Q2004

This project will provide for rehabilitation to correct mechanical, electrical and architectural deficiencies in Buildings 77 (a 39 year old, 68,000 sq. ft. high-bay industrial facility) and 77A (a 14 year old, 10,000 sq. ft. industrial facility). Both buildings house machine shop and assembly operations in which production of highly sophisticated research components for a variety of DOE research projects is performed. Current work includes precision machining, fabrication and assembly of components for Science/Science Laboratories Infrastructure/
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the Advanced Light Source, the Dual-Axis Radiographic Hydrodynamic Test Facility (DAHRT) project, the Spallation Neutron Source, and the ATLAS Detector. Infrastructure systems installed by this project will include HVAC, power distribution, lighting, and noise absorption materials. The improvements are necessary to satisfy urgent demands for high levels of cleanliness, temperature and humidity control, and OSHA and reliability requirements. This is the second of two projects; the first project, funded in FY 1999 and completed in FY 2002, corrected structural deficiencies in Bldg. 77.

(dollars in thousands)

(Design Project No. PED-03-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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03 -02: MEL-001-027

Research Support

Building, Phase I

BNL

1,710

0

0

0

1Q2003

2Q2004

3Q2004

This design project will provide design for construction of the Research Support Building, Phase I. This 55,000 sq. ft. Research Support Building is intended to consolidate Staff Services, Public Affairs, Human Resources, Credit Union, Library and other support functions in a central quadrangle to provide staff and visiting scientists with convenient and efficient support. This facility, the first of four phases in the BNL Master Revitalization Plan, will include a lobby with a visitor information center to assist visiting scientists, and a coordinated office layout of related support services. After completion of this project, 23,000 sq. ft. of World War II era structures will be torn down. Based on total life-cycle costs, productivity gains, avoided energy and maintenance costs, the Research Support Building will provide a return on investment of 14.4% and a simple payback of 9 years.

(dollars in thousands)

(Design Project No. PED-03-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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03 -03: MEL-001-033

CEBAF Center Addition,

Phase I

TJNAF

545

0

0

0

1Q2003

4Q2003

1Q2004

This project is Phase I of three phases to provide for additions to the CEBAF Center office building. The purpose of the three phases is to provide additional critical computer center space and to eliminate off-site leases and existing trailers to collocate staff for enhanced productivity. This first addition will add 59,000 sq. ft. of computer center (7,600 sq. ft) and office space and eliminate 22,000 sq. ft. of aging trailers with a 7.4-year simple payback and a 10% rate of return. Phase I will provide additional space for 182 users and 50 staff personnel.

FY 2003 Total

3,355

0

0

0

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Design (PED)

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FY 2002 Ongoing Design Projects

(dollars in thousands)

(Design Project No. PED-02-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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General Purpose Facilities Projects:

02-01: MEL-001-018

Lab. Systems Upgrade PNNL 880 880 880 622 1Q2002 3Q2003 2Q2003

This design project will provide design to upgrade or replace 20-50 year old mechanical system components in eight high occupancy facilities, replacing them with more efficient, better performing systems to enhance the quality of science while reducing maintenance and energy costs. This upgrade will include: replacement of HVAC supply and exhaust fans; replacement, rehabilitation or modification of numerous chemical exhaust fume hoods; installation of computerized, remote, digital controls on various systems to improve operations.

(dollars in thousands)

(Design Project No. PED-02-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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02-03: MEL-001-025

Research Support Center ORNL 1,500 1,500 1,500 522 1Q2002 3Q2003 2Q2003

This design project will construct a 50,000 sq. ft. facility to house the core support service facilities and serve as the cornerstone and focal point of the East Research Campus envisioned in the ORNL Facility Revitalization Project. This building will include an auditorium and conference center (currently there is no adequate auditorium/conference space available at ORNL), cafeteria, visitor reception and control area, and offices for support staff. It will facilitate consolidation of functions, which are presently scattered throughout the Laboratory complex in facilities that are old (30-50 years), undersized, poorly located, or scheduled for surplus. The facility will serve as a modern center for meeting, collaborating, and exchanging scientific ideas for ORNL staff and the nearly 30,000 visitors, guests, and collaborators that use ORNL facilities each year. The new cafeteria will replace the existing cafeteria, which was constructed in 1953. The existing cafeteria is poorly located to serve the current staff and is adjacent to the original production area of the laboratory now undergoing decontamination. The estimated simple payback is seven years.

(dollars in thousands)

(Design Project No. PED-02-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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Environment, Safety & Health Projects:

02-08: MEL-001-017

Mechanical Control Systems Upgrade, Ph. I ANL 803 803 803 230 1Q2002 3Q2003 2Q2003

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Design (PED)

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(dollars in thousands)

(Design Project No. PED-02-SC-001) Multiprogram Energy Laboratories, Project Engineering Design (PED), Various Locations	Location	Design TEC	Approp. to Date	Obligs. to Date	Costs to Date	Design Start	Design Completion	Constr. Status (Fiscal Year)
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This design project will provide design to upgrade and replace 30-40 year old mechanical system components in various facilities. It will optimize capacity, enhance system reliability and performance, improve safety, and reduce maintenance and repair costs of primary building mechanical equipment and control systems. The mechanical systems designated for replacement are no longer adequate, reliable, or efficient, and do not meet current ES&H standards (i.e. failure of laboratory exhaust systems could lead to the release of radioactive material). Specifically, this project will: upgrade HVAC systems in Bldgs. 221 and 362, including heating and cooling coils, fans, filter systems, ductwork, controls, and variable frequency drive fans; upgrade lab exhaust systems in Bldgs. 202 and 306, including new fans, ductwork, and controls; upgrade corroded drainage systems in Bldgs. 200, 205 and 350; and upgrade steam and condensate return systems in 12 facilities in the 360 area. This will include high and low pressure steam supply piping and associated pressure reducing stations, valves, and accessories; and replacing condensate pumping systems including piping, valves and system controls.

FY 2002 Total	3,183	3,183	3,183	1,374
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4. Details of Cost Estimate

N/A

5. Method of Performance

Design services will be obtained through competitive and/or negotiated contracts. M&O contractor staff may be utilized in areas involving security, production, proliferation, etc. concerns.

6. Schedule of Project Funding

N/A